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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,782	02/24/2004	Jung Gwan Han	YHK-0132	2202
34610 7590 04/03/2007 KED & ASSOCIATES, LLP P.O. Box 221200 Chantilly, VA 20153-1200			EXAMINER SHERMAN, STEPHEN G	
			ART UNIT	PAPER NUMBER
			2629	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/784,782	Applicant(s) HAN ET AL.	
	Examiner Stephen G. Sherman	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

The specification states on page 13, lines 19-22: "In the reset period, a falling ramp waveform Rdn, which is falling from the negative voltage $-V1$, is simultaneously applied to all of the scan electrodes Y1 to Yn and the sustain electrodes Z." This, however, is incorrect. Figure 9 shows that only a square waveform is applied to the sustain electrodes and NOT a falling ramp waveform. This statement in the specification is therefore incorrect with regards to Figure 9. Figure 6 shows this feature in the first embodiment, but it is never shown in the second embodiment.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 3-6, 11-12, 14 and 17-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable

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one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claims 3 and 11, the claims recite: "wherein the initializing driver simultaneously supplies a rising ramp waveform and a falling ramp waveform following the rising ramp waveform to the scan electrode and the sustain electrode." The embodiments of the invention shown in Figures 6 and 9, however, only show that the rising ramp waveform follows the falling ramp waveform, such that during the reset period the reset waveform starts at zero, falls to a negative voltage and then rises back up to zero. There is nothing in the specification stating that the reset waveform could start at zero rise to a positive voltage and then fall back to zero. In fact, the applicant's invention would not work properly if the pulses were applied this way. Therefore, one skilled in the art would not be able to make and/or use the invention.

Regarding claim 4, the claim recites: "wherein the initializing driver supplies the falling ramp waveform and a rising ramp waveform following the falling ramp waveform to the scan electrode, and supplies a fourth negative voltage to the sustain electrode." Claim 4, however, is dependent upon claim 3, which states: "wherein the initializing driver simultaneously supplies a rising ramp waveform and a falling ramp waveform following the rising ramp waveform to the scan electrode and the sustain electrode." Figure 9 shows the idea presented in claim 4 and Figure 6 shows the idea presented in claim 3, where Figures 6 and 9 are each separate embodiments. It is

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never discloses that the rising and falling ramp reset waveform shown in Figure 6 can be used with the constant voltage applied to the sustain electrodes in Figure 9. In fact these two could not be done together as suggested by the claims, therefore, there is nothing in the specification enabling claim 4 to be used with claim 3, and therefore one skilled in the art would not be able to make and/or use the invention.

Regarding claim 12, the claim recites: "wherein the step of initializing the cells includes: supplying a falling ramp waveform and a rising ramp wave form following the falling ramp waveform to the scan electrode; and supplying a fourth negative voltage synchronized with the rising ramp waveform to the sustain electrode." Claim 12, however, is dependent upon claim 10, which states: "...initializing the cells includes supplying an **identical waveform** to both of the scan electrode and the sustain electrode..." Figure 9 shows the aspect of what is claimed in claim 12 and it clearly shows that the waveforms applied to the scan and sustain electrodes **are not identical** as required by claim 10. Therefore, one skilled in the art would not be able to make and/or use the invention.

Regarding claim 17, the claim recites: "...an address period for selecting the cells using a scan voltage of a first polarity and a data voltage of a second polarity..." As shown in Figures 6 and 9, the scan voltage applied for selecting the cells is **positive** and the data voltage for selecting the cells is **zero or ground** and the voltage for off cells is **positive**. There are only two polarities, positive or negative. Therefore, if the

claim states that the scan voltage is of a "first polarity" and the data voltage is of a "second polarity" one must be positive and one must be negative. However, as mentioned above, the scan voltage is positive and the data voltage is either zero or ground, which is not negative and thus it is never disclosed that the data pulse are of a "second polarity". Therefore, one skilled in the art would not be able to make and/or use the invention.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the claim recites: "...and for selecting off-cells by applying data of a third voltage and the scan pulse to the scan electrode..." This statement, however, is not clear in the claims because the claim could mean that data of a third voltage and the scan pulse are both applied to the scan electrode, or the claim could mean that data of a third voltage is applied to a different electrode while the scan pulse is applied to the scan electrode. For examination purpose, the examiner will interpret the claims based on what he assumes is meant, in that the off-cells are selected by applying data of a third voltage to the address electrodes and the scan pulse to the scan electrode.

6. Claim 13 recites the limitation "the fourth voltage." There is insufficient antecedent basis for this limitation in the claim.
7. Claims 7 and 15 recite the limitation "the ground voltage". There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1, 8-9, 13 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Tae et al. (WO 03/098586).

Regarding claim 1, Tae et al. disclose a plasma display having an address electrode, a scan electrode and a sustain electrode, wherein cells are arranged at the intersection of the electrodes, including:

an initializing driver for initializing the cells (Figure 6 shows that there is a reset period in which the cells would be initialized meaning that there would be an "initializing driver",); and

an address driver for selecting on-cells by applying data of a first voltage to the address electrode and a scan pulse of a second voltage to the scan electrode, and for selecting off-cells by applying data of a third voltage and the scan pulse to the scan electrodes (Figure 6a shows that when cells are selected to be on a voltage $-V_A$ is applied to the address electrode while a voltage V_S is applied to the scan electrode, and when a cells is off, a voltage of GND is applied to the address electrode and a voltage V_S is applied to the scan electrode.),

wherein the third voltage is higher than the first voltage (As explained above, the voltage for on cells, i.e. first voltage, is negative while the voltage for off cells, i.e. third voltage is GND. GND is a higher than a negative voltage level and therefore the third voltage is higher than the first.).

Regarding claim 8, Tae et al. disclose the plasma display of claim 1, wherein the plasma display further includes a sustain driver for applying alternately a sustain pulse of a fifth voltage to the scan electrode and the sustain electrode to occur a sustain discharge with respect to the on-cells (Figure 6a shows that during the sustain period pulses of the voltage V_S are applied alternately between the sustain electrodes X and the scan electrodes Y.).

Regarding claim 9, please refer to the rejection of claim 1, and furthermore Tae et al. also disclose wherein the second voltage is higher than the first voltage (As explained above, the first voltage is a negative voltage, while the second voltage, i.e. scan voltage, is a positive value VS, meaning that the second voltage is higher than the first.).

Regarding claim 13. Tae et al. disclose the method of claim 9, wherein the method further includes supplying the fourth voltage to the sustain electrode to select the on-cells and the off-cells, in the address period (Figure 6a shows that a voltage GND is applied to the sustain electrodes X in order to allow for the selection of cells during the address period.).

Regarding claim 16, this claim is rejected under the same rationale as claim 8.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 2-3, 6, 10-11 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tae et al. (WO 03/098586) in view of Yoon et al. (Us 2003/0222835).

Regarding claim 2, Tae et al. disclose the plasma display of claim 1.

Tae et al. fail to teach wherein the initializing driver supplies an identical waveform to both of the scan electrode and the sustain electrode.

Yoon et al. disclose wherein an initializing driver of a plasma display supplies an identical waveform to both of the scan electrode and the sustain electrode (Figure 5 shows that the same pulse is applied during the rest period to both the Y and Z electrodes, i.e. the scan and sustain electrodes.).

Therefore it would have been obvious to "one of ordinary skill" in the art at the time the invention was made to use the teachings of Yoon et al. with the plasma display taught by Tae et al. in order to provide an initialization period which will allow for better accumulation of wall charges which will allow the voltages applied during the address and sustain periods to be reduced.

Regarding claim 10, this claim is rejected under the same rationale as claim 2.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kim (US 7,009,584) discloses a plasma display panel which can achieve improved contrast by minimizing luminance in the reset period. The ON/OFF state of the cells is determined in accordance with the ON/OFF state of the cells in the previous subfield, where positive and negative display pulses can be applied to the address electrodes.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen G. Sherman whose telephone number is (571) 272-2941. The examiner can normally be reached on M-F, 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SS

29 March 2007

AMR A. AWAD
SUPERVISORY PATENT EXAMINER

A handwritten signature in dark ink, appearing to read 'Amr A. Awad', is written over the printed name and title of the examiner.